Apache Manned-Unmanned Teaming Capability

By Lt. Col. Steven G. Van Riper

This photo illustration shows the path of data from the round Longbow Unmanned Aircraft Systems Tactical Common Data Link Assembly (UTA) mounted above the rotor of an AH-64D Apache to a nearby MQ-1C Gray Eagle unmanned aircraft system.

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The U.S. Army views manned-unmanned teaming (MUMT) as a critical capability. The Apache Project Office, Program Executive Office Aviation, and industry partners Longbow Limited (a Lockheed Martin and Northrop Grumman joint venture) and SES (with L3 Communications and Boeing) have given the AH-64D and E MUMT systems the ability to grow with planned force restructuring, evolving doctrine and new tactics.

How the Army Does It

There are currently two fielded systems, both of which have been used at combat training centers within and outside the continental U.S. They have also been deployed in support of Operation Enduring Freedom.

The first system fielded is the MUMT Level of Interoperability (LOI) 2 (MUMT-2). It is a data link for the AH-64D that provides a fully integrated multiband, interoperable (LOI-2) capability that allows pilots to receive off-board sensor video streaming from different platforms in non-Tactical Common Data Link (TCDL) bands. The MUMT-2 data link can retransmit Unmanned Aerial System (UAS) or Apache Modernized Target Acquisition Designation Sight full-motion sensor video and metadata to another MUMT-2-equipped Apache. It can also transmit to ground forces equipped with the One Station Remote Video Terminal.

The second system, the UAS Tactical Common Data Link Assembly (UTA) for the AH-64E, provides fully integrated LOI 3 and 4 with ranges exceeding 50 kilometers (km). The UTA system is currently compatible with TCDL-equipped UAS.

It provides Apache aircrews with increased situational awareness and net-centric interoperability while significantly reducing sensor-to-shooter timelines. This combination results in increased survivability of Apache aircrews and ground forces by decreasing their exposure to hostile fire. It also allows for earlier identification of key decision points.

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Clockwise from above: An MQ-1C Gray Eagle unmanned aircraft system (UAS) transmits images and sensor data for up to 24 hours at altitudes up to 25,000 feet; a Longbow UTA allows the crew of an AH-64D Apache to control a UAS while both are in flight; an AH-64 Apache departs Bagram Airfield, Afghanistan.

Putting Systems to Work

Future combat operations will require Army Aviation units to operate over larger areas of responsibility and project both combat and scout capabilities forward at ever-increasing ranges and speeds. These growing expectations create a pull for maintaining extended data link ranges as demonstrated in the UTA system. As Apache battalions add reconnaissance missions to their traditional attack role, the long-range data link capability will accelerate the ability to deliver timely Mission Command and intelligence information to tactical, operational and strategic commanders.

During AH-64E operational testing in 2013 at the National Training Center, Fort Irwin, California, a Gray Eagle UAS transmitted full-motion video to an AH-64E Apache cockpit display over 100 km away. As a result, the Apache aircrew used the Gray Eagle streaming video to coordinate artillery fire to destroy the identified target without leaving their assembly area.

As these systems continue to be fielded with AH-64 units, Army aviators are finding new techniques to use these capabilities. For example, Apache aircrews are using the UAS sensor as the Apache weapon's line of sight to calculate targeting solutions with Level 3 and 4 UAS control. One former Apache battalion commander indicated the Level 3 and 4 UAS control to be very intuitive in the cockpit and saw definite value with this new long-range capability. AH-64D units equipped with the MUMT-2 system have been successful in joint environments with the U.S. Air Force and other platforms in conducting cooperative kinetic and non-kinetic operations.

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The MUMT-2-equipped AH-64D and the UTA-equipped AH-64E are currently the only Army Aviation rotary-wing platforms to fly with fully integrated MUMT capabilities. These systems are critical to ensure the success of offensive, defensive, reconnaissance, surveillance and target acquisition missions. Through operational testing and ongoing use with Army Aviation units, these systems have demonstrated their value and capability. Together, these systems provide unit commanders the ability to increase their economy of force while expanding battlefield situational awareness and reducing operating costs. ★

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